

Procedure Name:	USOS Pre-Ingress Atmosphere Sampling 12/17/97
Applicability:	Flights 2A.1 and subs
Frequency:	Prior to module ingress, once prior to Node scrubbing, once after Node scrubbing.
Objective:	To perform atmosphere sampling using External Sampling Adapter (ESA)
Description:	How to connect ESA to MPEV and draw atmosphere sample.
Crew Required:	1
Power:	None
Data:	None
Duration:	TBD
Location:	Exterior Module Hatch
Parts:	External Sampling Adapter (ESA) Evacuated Sampling Container
Materials:	???
Tools:	None
Constraints:	???
Assumptions:	Module to be sampled is overpressured (for purging of the volume between ESA and MPEV). A pressure gauge is already attached to the adapter.
Reference Materials:	Pre-launch atmosphere sampling procedure ESA CDR Technical Drawings Dan Leonard - ECLSS AIT Robyn Carrasquillo - MSFC

PRE-INGRESS ATMOSPHERE SAMPLING

TOOLS AND EQUIPMENT REQUIRED

Unstow:

- External Sampling Adapter (ESA)
- Evacuated Sample Container

ATTACH ESA TO MPEV

1. ✓ MPEV handle - CLOSED
2. ✓ ESA handle - CLOSED
3. Align arrow on ESA handle with arrow on MPEV handle.
4. Align ESA screws (four) with holes on hatch panel surrounding MPEV.

NOTE

There is a dot on ESA that will align with a piece of silver tape on the hatch panel.

5. Manually tighten ESA screws (4)

PURGE VOLUME BETWEEN ESA AND MPEV

6. ✓ ESA Sample Valve → CLOSED
7. ESA handle → OPEN
8. ESA Sample Valve → OPEN
9. Wait 10 seconds.
10. ESA Sample Valve → CLOSED

ATTACH EVACUATED SAMPLE CONTAINER TO ESA

11. Record date and time on sample container.
12. Unscrew dustcap on evacuated sampling bottle.
13. Connect evacuated sample container to ESA Sample Valve (procedure TBD).

SAMPLE MODULE ATMOSPHERE

14. ESA Sample Valve → OPEN
15. Evacuated Sample Container Valve → OPEN
16. Wait 10 seconds.
17. Evacuated Sample Container Valve → CLOSED
18. ESA Sample Valve → CLOSED
19. ESA handle → CLOSED

DETACH SAMPLE CONTAINER FROM ESA

20. Disconnect Sample Container from ESA (procedure TBD).
21. Stow Sample Container in TBD location.

DETACH ESA FROM MPEV

22. ✓ ESA handle → CLOSED
23. ESA Sample Valve → OPEN
24. Wait TBD seconds.
25. ESA Sample Valve → CLOSED

26. Untighten ESA screws (4).
27. Remove ESA from MPEV face.
28. Clean interior volume of ESA to remove contaminants that may adhere to interior lining. (Process TBD)
29. Stow ESA in TBD shuttle middeck locker.

Items TBD:

In which shuttle middeck locker is ESA stowed?

Purge time for ESA/MPEV volume before sampling

Location of Evacuated Sample Container before and after sampling

How to attach/disconnect sample container

Wait time after opening sample valve to relieve pressure in ESA

Procedure to clean ESA

Is .2 psid enough overpress for mod to be sampled?

What is the max dP the bottle can stand? (Can we sample the Node if the Orbiter is @ 10.2 and the Node @ 14.7?)